

FEATURES

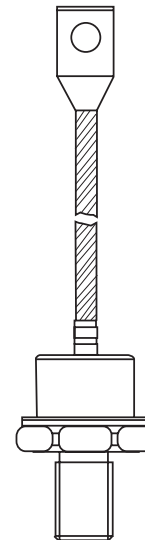
- 1). Diffused diode
- 2). Wide current range
- 3). High voltage ratings up to 1600V
- 4). High surge current capabilities
- 5). Stud cathode and stud anode version

TYPICAL APPLICATIONS

- 1). Converters
- 2). Power supplies
- 3). Machine tool controls
- 4). High power drives
- 5). Medium traction applications

MAJOR RATINGS AND CHARACTERISTICS

Parameters		250U(R)	UNIT
$I_{F(AV)}$		250	A
	@ TC	145	°C
$I_{F(RMS)}$		390	A
I_{FSM}	@ 50Hz	6550	A
	@ 60Hz	6850	A
I^2t	@ 50Hz	214	A ² s
	@ 60Hz	195	A ² s
V_{RRM}	range	1200 to 1600	V
T_J	range	- 40 to 200	°C



ELECTRICAL SPECIFICATIONS

1). Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage	V_{RSM} , maximum non-repetitive peak reverse voltage	I_{RRM} max. $T_J = 175^\circ\text{C}$
		V	V	mA
250U(R)	10	100	200	60
	20	200	300	
	40	400	500	
	60	600	720	
	80	800	960	
	100	1000	1200	
	120	1200	1300	
	160	1600	1700	

2). Forward Conduction

Parameters		6F(R)	Unit	Conditions		
$I_{F(AV)}$	Max. average forward current @ Case temperature	250	A	180° conduction, half sine wave		
		145	°C			
$I_{F(RMS)}$	Max. RMS forward current	390				
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	6550	A	t = 10ms	No voltage	Sinusoidal half wave, Initial $T_J = T_J$ max.
		6850		t = 8.3ms	reapplied	
		5500		t = 10ms	100% V_{RRM}	
		5750		t = 8.3ms	reapplied	
I^2t	Maximum I^2t for fusing	214	A^2s	t = 10ms	No voltage	
		195		t = 8.3ms	reapplied	
		151		t = 10ms	100% V_{RRM}	
		138		t = 8.3ms	reapplied	
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	2140	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.61	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.83		$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
r_{f1}	Low level value of forward slope resistance	0.75	$m\Omega$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
r_{f2}	High level value of forward slope resistance	0.49		$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
V_{FM}	Max. forward voltage drop	1.30	V	$I_{pk} = 785A$, $T_J = 25^\circ C$, $t_p = 10ms$ rectangular wave		
T_J	Max. junction operating temperature range	-40 to 200	°C			
T_{stg}	Max. storage temperature range	-40 to 200				
R_{thJC}	Max. thermal resistance, junction to case	0.18	K/W	DC operation		
R_{thCS}	Max. thermal resistance, case to heatsink	0.08		Mounting surface, smooth, flat and greased		
T	Max. allowed mounting torque $\pm 10\%$	37	Nm	Not lubricated threads		
		28		Lubricated threads		
wt	Approximate weight	250	g	unleaded device		
	Case style	DO-9		See Outline Table		

ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.020	0.015	K/W	$T_J = T_J$ max.
120°	0.024	0.025		
90°	0.031	0.034		
60°	0.045	0.047		
30°	0.077	0.077		

PERFORMANCE CURVES FIGURE

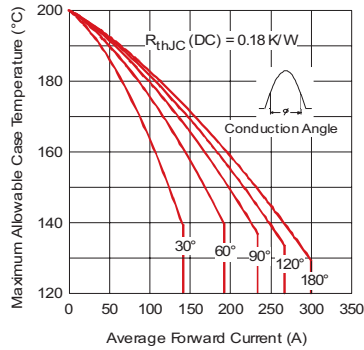


Fig. 1 - Current Ratings Characteristics

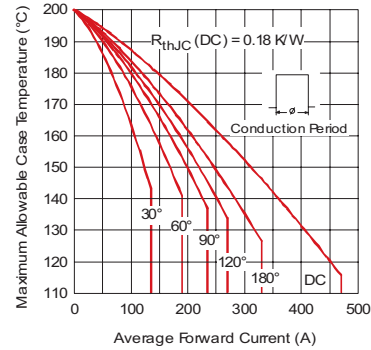


Fig. 2 - Current Ratings Characteristics

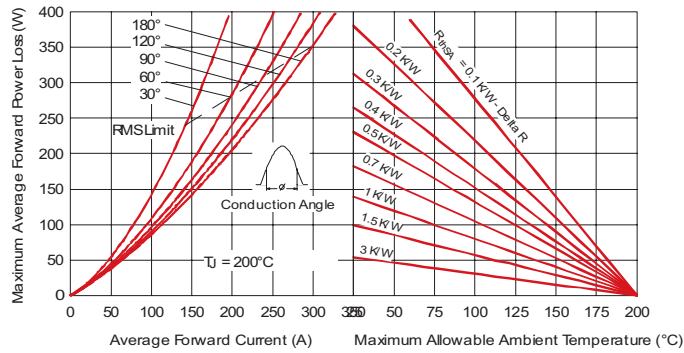


Fig. 3 - Forward Power Loss Characteristics

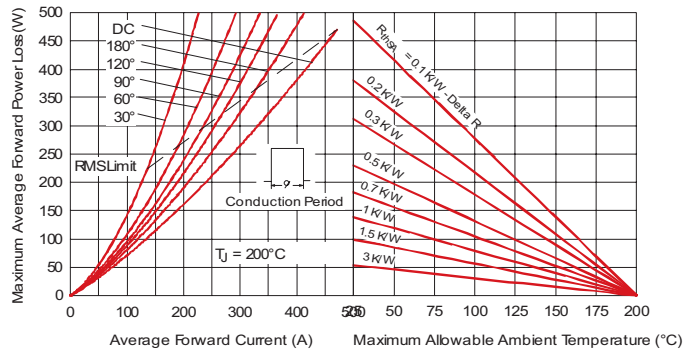


Fig. 4 - Forward Power Loss Characteristics

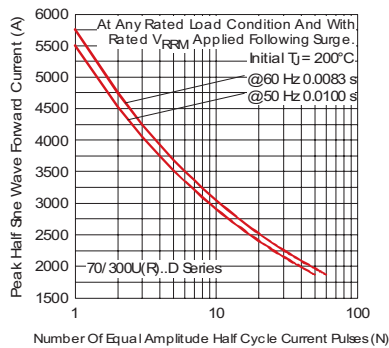


Fig. 5 - Maximum Non-Repetitive Surge Current

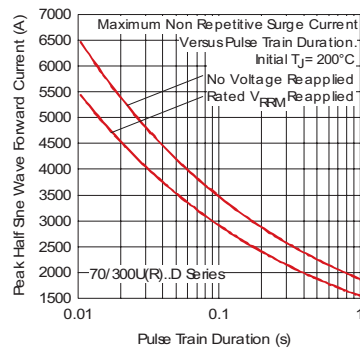


Fig. 6 - Maximum Non-Repetitive Surge Current

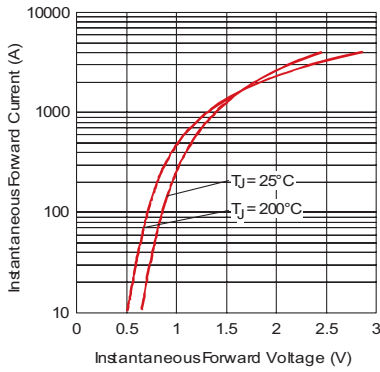


Fig. 7 - Forward Voltage Drop Characteristics

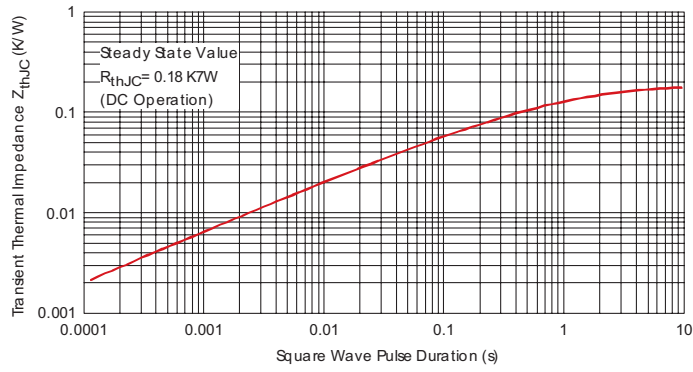
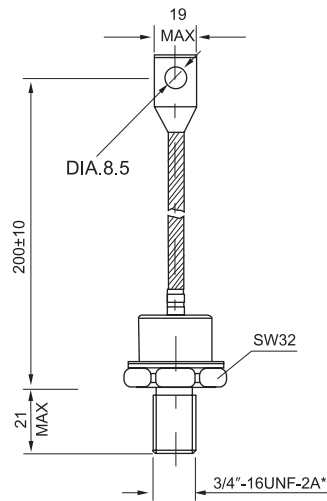


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

OUTLINE



*FOR METRIC DEVICE: M16 × 1.5/M20 × 1.5

Case Style DO-8

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